BP in Angola Sustainability Report 2016
The energy we produce serves to power economic growth and lift people out of poverty. In the future, the way heat, light and mobility are delivered will change. We aim to anchor our business in these changing patterns of demand, rather than in the quest for supply. We have a real contribution to make to the world’s ambition of a low carbon future.

For a secure, affordable and sustainable energy future.

Introduction from regional president

We aim to build a safe, reliable and competitive business in Angola that benefits the country and our shareholders. 2016 was a very challenging year and we delivered solid results in all aspects of our performance. This report describes our activities and the progress across our business – we welcome your feedback on the report and on our business activities in Angola.

Our safety and environmental performance

Personal and process safety is at the heart of what we do and who we are, and we remain very focused on our goal of no accidents, no harm to people and no damage to the environment. We have reduced the number of loss of primary containment incidents; our recordable injury frequency rate improved, and we increased the number and quality of safety conversations across the business. However, we still had some incidents that caused concern during the year. These included events in which a total of three people suffered minor injuries which required medical treatment. It reminds us that we must always remain vigilant when it comes to safety. Our approach is to care for each other, speak up and stop the job if something is not right.

We undertook a major oil spill response exercise in Angola with 135 participants, including a cross-section of BP staff, government representatives and industry colleagues. It is our duty to run a safe and reliable business, but also to be prepared in case of emergency. This exercise gives us assurance that our people are ready to respond and our systems, process and resources are robust.

Our people

Building a local organization with global capability and maintaining a motivated and engaged team are two of our key people priorities. The percentage of Angolan nationals working in our Angola organization has increased from 79% at the end of 2015 to 86% at the end of 2016, and we have increased the number of Angolan nationals in senior leader positions from 12 to 17. Our internal staff survey scores saw an upturn in overall engagement to 79%, from 75% in 2015 and 74% in 2014. In recognition of the challenging external economic environment, we took several steps to support our employees in their lives outside the office.

Competitiveness

Competitiveness is essential to build a long term sustainable business; it requires continuous improvement in all we do. In 2016, we achieved an operating efficiency of 93% at Greater Plutonio and 94% at PSVM, and we are working hard to ensure cost effectiveness across the business. We reported net average daily production of 233,000 barrels of oil equivalent, which was above our target. Towards the end of 2016, we reviewed our operating model and undertook a staff reorganization in the first quarter of 2017, which resulted in redundancies. We provided support and assistance to all those affected throughout the process. Operational performance was robust; we completed the Greater Plutonio phase 3 project six months ahead of schedule and 27% under budget. We carried out the drilling campaign for the PSVM phase 2 programmes safely and successfully. We completed the first BP operated subssea well intervention campaign ahead of schedule.

Supporting the community

As part of our social investment we led a public health campaign in response to the outbreak of yellow fever, malaria and other water-borne diseases to provide equipment and medical supplies to local hospitals, supported by funds raised from our employees and by BP. We are delighted to report that our corporate social responsibility work has been recognized through the Excellence Civitas Awards for the best company in the energy sector and best company overall in Angola.

Looking to the future

The business environment was difficult in 2016 and we expect this to continue for the foreseeable future. We have entered an era where the availability of energy is growing and diversifying, whilst the growth in demand is more modest – competitiveness will be key in this environment. We remain focused on managing costs, finding solutions to simplify how we work and delivering our business plan to 2020. We have two high-quality assets in Greater Plutonio and PSVM which continue to perform extremely well, delivering more than 360mbd gross production and we are developing plans to extend their production into the future. We are also testing the viability of various options in blocks 18, 31 and beyond. Despite the challenging operating context, we have many reasons to be optimistic and confident about the future. As the newly appointed regional president for BP Angola, I am proud to be part of that future.
BP’s global business

From the deep sea to the desert, from rigs to retail, we deliver energy products and services to people around the world. We provide customers with fuel for transport, energy for heat and light, lubricants to keep engines moving and the petrochemicals products used to make everyday items as diverse as paints, clothes and packaging.

Our diverse portfolio is balanced across businesses, resource types and geographies. Having upstream and downstream businesses, along with well-established trading capabilities, helps to mitigate the impact of lower oil and gas prices. Our geographic reach gives us access to growing markets and new resources, as well as diversifying exposure to geopolitical events.

Safe and reliable operations

We strive to create and maintain a safe operating culture where safety is front and centre. This is not only safer for people and the environment – it also improves the reliability of our assets.

See Safety, health and security on p24.

Talented people

We work to attract, motivate, develop and retain the best talent the world offers – our performance and ability to thrive globally depends on it.

See Our people on p22.

Technology, innovation and venturing

New technologies are enabling us to produce energy safely and more efficiently. We selectively research and invest in areas with the potential to add greatest value to our business now and in the future.

See Our operations on p17.

Partnerships and collaboration

We aim to build enduring relationships with governments, customers, partners, suppliers and communities in the countries where we operate.

See Maximising value to society on p33.

Enabling our business model

Finding oil and gas

Our upstream pipeline of future projects gives us choice about which we pursue. We also seek to grow or extend the life of existing fields and are using new business models to increase value. Our US Lower 48 onshore business and Aker BP in Norway are two examples of how we’ve used innovative new business models in response to the competitive environment.

Finding value

New access allows us to renew our portfolio, discover additional resources and replenish our development options. We focus our exploration activities in the areas that are competitive in the portfolio. We develop and use technology to reduce costs and risks.

Developing and extracting oil and gas

We create value by seeking to progress hydrocarbon resources and turn them into proved reserves, or sell them on if they do not fit with our strategic priorities. We develop and produce the resources that meet our return threshold, which we then sell to the market or distribute to our downstream facilities.

We use our market intelligence to analyse supply and demand for commodities across our global network. This helps us deliver what the market needs, when it needs it, identify the best markets for BP’s crude oil, source optimal raw materials for our refineries and provide competitive supply for our marketing businesses.

Manufacturing and marketing fuels and products

We produce petroleum products at our refineries and supply distinctive fuel and convenience retail services to consumers. Our advantaged infrastructure, logistics network and key partnerships help us to have differentiated businesses and deliver compelling customer offers.

Our lubricants business has premium brands and access to growth markets. It also leverages technology and customer relationships, all of which we believe gives us competitive advantage. We serve automotive, industrial, marine and energy markets across the world.

And in petrochemicals our proprietary technology solutions deliver leading cost positions compared to our competitors. In addition to our own petrochemicals plants, we work with partners and license our technology to third parties.

Generating renewable energy

We have the largest operated renewables business among our oil and gas peers. We operate a biofuels business in Brazil, using one of the world’s most sustainable and advantaged feedstocks to produce low carbon ethanol and low carbon power.

We provide renewable power through our significant interests in onshore wind energy in the US. We develop and deploy technology in our wind business to drive efficiency and capacity.

Overview

How we operate

Safety, health and security

Managing environmental impact

Generating value

Partnerships and collaboration

Governance and oversight

Our risk management systems and policy provide a consistent and clear framework for managing and reporting risks. The board regularly reviews how we identify, evaluate and manage risks.

See How we manage risk on p15.

$11.2bn

Employee wages and benefits

$2.2bn

Savings paid to governments – comprising income and production taxes

$7.5bn

Total dividends distributed to BP shareholders
BP around the world

We are a global energy company with wide reach across the world’s energy system. We have operations in Europe, North and South America, Australasia, Asia and Africa.

Scale
18,000
retail sites
72
countries
$187.3bn
economic value generated
6,000+
marine voyages completed by BP-operated and chartered vessels
3.3
million barrels of oil equivalent per day

BP in action

Announced plans to optimize wind business – BP is one of the top producers of wind energy in the US.

Enhanced our human rights due diligence process for using spot-chartered vessels in the North Sea.

Launched our low carbon and carbon neutral PTA brand.

Signed the largest deal yet in China’s emerging carbon trading market.

Increased gas recovery from offshore operations in the Caspian Sea.

Reached production of three billion barrels of oil at our Rumaila joint venture. For local community engagement.

Tasted technology that aims to enhance safety on our offshore platforms in the Gulf of Mexico.

Acquired interests in gas exploration blocks in offshore Mauritania and Senegal.

Started up the In Salah Southern Fields gas project in central Algeria.

Conducted a major oil spill response exercise in Angola with government and others.

Agreed to extend the Khazzan gas field, with production expected to meet 40% of Oman’s domestic gas supply.

Announced plans to optimize wind business – BP is one of the top producers of wind energy in the US.

BP employees by region
1. Europe
2. US and Canada
3. Asia Pacific
4. South and Central America
5. Middle East and North Africa
6. Sub-Saharan Africa
Total

BP employees by segment
1. Upstream
2. Downstream
3. Other businesses and corporate
Total

Overview
How we operate
Safety, health and security
Managing environmental impacts
Maximizing value to society

Highlights of some of our activities in 2016.

Entered into a strategic partnership with Fulcrum BioEnergy – a company that produces sustainable jet fuel from household waste.

Achieved a 100% rating for sustainability performance at one of our biofuels mills in Brazil.

Conducted a major oil spill response exercise in Angola with government and others.

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A challenging environment

The decline in the international crude oil price since mid-2014 poses challenges for the entire petroleum industry. It has far-reaching impacts on Angola, a country which is greatly dependent on oil and gas revenues.

As the second-largest oil producer in Africa after Nigeria, Angola’s oil sector continues to underpin the country’s reconstruction and is the major source of export earnings and foreign investment. Reliance on oil means that Angola is heavily exposed to fluctuations in the oil price. To address this challenge, the government has been seeking growth in the non-oil sector, with a public sector investment programme that attempts to diversify the economy, complete reconstruction and address key infrastructure gaps.

BP recognizes the risk to the country of over-dependence on the oil and gas sector, and the need to manage the high expectations that stakeholders have of our industry. While our key contribution lies in maximizing oil and gas production, we play a supporting role in helping to develop the national economy.

See page 36 for how BP Angola promotes enterprise

Development constraints

The condition of the country’s physical infrastructure – power and water provision, the road and rail network, and health and education systems – poses daily challenges to the Angolan people and to businesses. The need for a larger and better skilled local labour force, and the intense competition for qualified local labour, can also constrain business development.

The government’s reform agenda addresses a number of these important issues, including improving access to credit, the provision of training, and streamlining licensing procedures while reducing their cost. Implementation of these initiatives, particularly in a difficult economic climate, is vital to improve competitiveness.

See page 34 for information on our social investment strategy

Ethics and transparency


See page 16 for our approach to anti-bribery and corruption

Environment

In recent years, the Angolan government has increased its efforts to protect the natural environment through legislation and monitoring of petroleum activities. BP supports the government’s efforts and applies the same rigorous environmental standards in Angola as we do throughout our worldwide operations. Where appropriate in our operations, we work with the environmental authorities to assure that regulations are reasonable in the Angolan context and consistent with best international practices.

See page 28 for our approach to environmental management

BP Angola in context

Working in Angola, a developing country with a heritage of conflict, creates an operating context for business which is demanding, but where opportunities also exist.

Overview

How we operate

Safety, health and security

Managing environmental impacts

Measuring value and society

Our stakeholders

We engage with a wide range of individuals and organizations to understand society’s expectations of us.

Our stakeholders are the many individuals and organizations who are affected in some way by BP’s activities, whether it is in its role as an energy provider, an employer, or as a business that generates revenues and helps to boost local economies.

Employees

We inform our employees about plans and developments in our business and in the wider market. We communicate through town hall meetings where employees hear from the executive team, as well as panel discussions on industry themes. We have well-established channels to communicate with our employees and for them to raise any concerns they have. These include clear processes for dealing with problems or grievances.

Governments and regulators

We maintain dialogue with all relevant government agencies, ministries and regulatory departments in Angola. We work closely with民营机构 on social projects across the country. Where our expertise is valuable, we provide information and guidance to government agencies.

Our industry

Working with industry groups, we help establish standards and address complex energy challenges, collaborating with our peers where an industry response is required. For example, we have recently signed agreements with other operating companies in Angola and the regulators in 2016 on a major oil spill response exercise.

See page 26

Contractors and partners

Like our industry peers, BP rarely works in isolation. Safe and responsible operations depend on the capability and performance of our suppliers, contractors and partners. We set operational standards through legally binding agreements and build the capability of our contractors through training. We continued to work closely with our contractors in 2016, reinforcing the message that everyone is accountable for safety in our operations.

Local communities

Angola faces many social and welfare challenges, so our relationships with communities are important for all our activities. Our social projects aim to support communities in building their capability, improving infrastructure, promoting education, supporting enterprises tackling challenges such as poverty. We engage with communities when developing new projects.

See page 34

Non-governmental organizations (NGOs)

Our social investment strategy involves collaborating with NGOs, who often act as implementing partners for our projects. We have established good relationships with a number of NGOs. For example, we have a long-standing relationship with ADRA and have worked together with them on a micro-credit and micro-enterprise initiative in Benguela and Huambo provinces.

See page 34

Academic institutions

We provide financial and technical support to Agostinho Neto University on courses relating to the oil and gas industry to build a body of people in Angola with expertise in the sector. We have also supported their faculty of science with investment in laboratories and equipment. Our social investment strategy includes a focus on support for education. For example, we have recently signed agreements with NGOs to promote teacher training. We support primary school education by renovating school buildings or building new schools.

See page 28

Caption: The Marginal in the heart of Luanda.
BP in Angola in figures

Data on our sustainability performance from 2012-2016.

Production

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<td>Total hydrocarbons produced (thousand barrels of oil equivalent (mboe) per day) (Op and non-op)</td>
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Safety

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<td>3,842</td>
<td>2,842</td>
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<td>22</td>
<td>33</td>
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<td>Volume of hydrocarbon spilled (thousands of barrels of oil equivalent (mboe))</td>
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<td>158</td>
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<td>1,030,492</td>
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<td>Volume of hydrocarbon unaccounted for (thousands of barrels of oil equivalent (mboe))</td>
<td>2015</td>
<td>1,078</td>
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<td>Total Vehicle Accident Rate</td>
<td>0.32</td>
<td>0.27</td>
<td>0.29</td>
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<td>Direct carbon dioxide (CO2) (tonnes)</td>
<td>898,618</td>
<td>1,709,590</td>
<td>2,212,866</td>
<td>2,598,991</td>
<td>3,200,714</td>
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<td>Direct methane (CH4) (tonnes)</td>
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<td>10,728</td>
<td>12,707</td>
<td>15,227</td>
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<td>Direct greenhouse gas (GHG) (tonnes CO2 equivalent)</td>
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<td>1,911,568</td>
<td>2,348,104</td>
<td>2,916,870</td>
<td>3,581,389</td>
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<td>1,030,492</td>
<td>1,039,825</td>
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<td>648</td>
<td>547</td>
<td>526</td>
<td>72</td>
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<td>6,319</td>
<td>9,980</td>
<td>9,742</td>
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<td>Non-methane hydrocarbons (NMHC) (tonnes)</td>
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<td>2,942</td>
<td>2,599</td>
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<td>Number of hazardous spills</td>
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<td>Total hydrocarbon spilled (thousands of barrels of oil equivalent (mboe))</td>
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<tr>
<td>Total</td>
<td>982</td>
<td>1,048</td>
<td>1,104</td>
<td>954</td>
<td>866</td>
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<tr>
<td>Non-Angolan nationals based in Angola</td>
<td>680</td>
<td>738</td>
<td>806</td>
<td>756</td>
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<td>Angola nationalsi</td>
<td>302</td>
<td>310</td>
<td>298</td>
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BP in Angola Sustainability Report 2016
BP Angola’s strategy

We aim to build a safe, reliable and competitive business in Angola that benefits the country and our shareholders.

A key part of BP

Angola is one of BP’s key regions for oil and gas exploration and development and a major part of BP’s activity in deepwater exploration and production. Net production from BP Angola accounted for over 19% of BP’s total net oil production worldwide (excluding Rosneft) in 2016.

We operate three deepwater offshore blocks in Angola and have commercial interests in four others. We also hold an interest in the Angola LNG project.

Our strategy in Angola

Our strategy in Angola is to build a safe, reliable and competitive business that benefits Angola and our shareholders. We must position ourselves to operate in an environment with declining production and low prices for an extended period while striving to create options for future investment. There are challenges ahead for our industry, for BP and for Angola, but our goals are clear. They are to:

• operate the existing business safely;
• stay competitive;
• continue to explore options for future projects; and
• develop and empower our people.

To pursue these goals, we seek to align our everyday business activities in Angola with the country’s development. Our vision is for BP Angola to be recognized as the partner of choice and a positive contributor to Angola’s development.

We also aim to create strategic partnerships for social and institutional development. We support a wide range of social projects in education, enterprise development, health, safety and environment, which aim to build capability and promote development in Angola.

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Governance and management systems

Our operations are shaped by our strategy and values, our management systems and processes and BP group’s strategic framework.

Bob Dudley
BP group chief executive
April 2017

Caption: A technician at work on Greater Plutonio.
### Governance and management systems

**Corporate governance policies guide our operations and detailed processes are applied in the management of our day to day activities.**

**BP Angola’s governance and management systems.**

The BP Angola leadership team has responsibility for the direction and oversight of BP Angola activities. It seeks to achieve the business goals of creating a sustainable oil and gas company, producing returns that contribute to the success of BP’s exploration and production business.

Our governance principles and management systems provide a framework for determining what we are trying to deliver and how we go about that delivery. In line with the rest of BP, controls include the BP code of conduct and our principles for delegation of authority.

As part of the control system, the BP Angola leadership team checks that work focuses on the development and implementation of our strategy, provides assurance on performance and manages risks to delivery.

**BP’s operating management system**

Our operating management system (OMS) is designed to help us manage risks in our operating activities and drive performance improvements.

OMS brings together BP requirements on health, safety, security, the environment, social responsibility and operational reliability, as well as related issues, such as maintenance, contractor relations and organizational learning, into a common management system.

It sets out the rules and principles that govern key risk management activities such as inspection, testing, competency development, as well as business continuity and crisis response planning.

We undertake an annual performance improvement cycle and assess alignment with the applicable requirements of the OMS framework. Any variations in the application of OMS in order to meet local regulations or circumstances are subject to a governance process.

**Risk management**

BP Angola is responsible for identifying and managing risks and bringing together people with the right skills to do this. We verify our conformance with safety and operating requirements and are subject to independent scrutiny and assurance.

We use BP-wide processes to continuously assess and manage any risks which might prevent us from achieving our business goals. These processes include quarterly risk review sessions focusing on safety and operational risks that may result in harm to people or damage to the environment. The reviews also cover a wide range of other technical and non-technical issues, such as strategic or commercial risk related to finance, legal and compliance issues, supply chain and external influences.

Risk management also involves review and support from our safety and operational risk team, which maintains an independent view of operating risk, provides assurance on how risks are being managed, and intervenes when appropriate to bring about corrective action. Our activities are also subject to periodic reviews by the BP group audit team.

**Non-operated joint ventures**

As part of the group risk assessment process, we identify the risks associated with non-operated joint venture activities and determine the level of risk exposure to BP. Where there are exposure risks of a certain level, we develop an action plan to address them.

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**BP Angola timeline**

<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>1970s</td>
<td>Initial Amoco involvement in Angola.</td>
</tr>
<tr>
<td>1996</td>
<td>Amoco acquires rights to block 18.</td>
</tr>
<tr>
<td>1999</td>
<td>BP assumes operation of block 31.</td>
</tr>
<tr>
<td>2001</td>
<td>Launch of offshore technician training programme.</td>
</tr>
<tr>
<td>2005</td>
<td>Exploration well development dispute.</td>
</tr>
<tr>
<td>2006</td>
<td>Greater Plutonio Floating Production Storage and Offloading (FPSO) construction is completed.</td>
</tr>
<tr>
<td>2008</td>
<td>BP makes 15th discovery in the ultra-deepwater of block 31; approval granted for the future development of block 31.</td>
</tr>
<tr>
<td>2010</td>
<td>BP invited to negotiate access to four new exploration blocks.</td>
</tr>
<tr>
<td>2011</td>
<td>BP and oil industry partners launch CAE – the enterprise centre.</td>
</tr>
<tr>
<td>2012</td>
<td>BP and Sonangol sign new production sharing agreements as operator of blocks 19 and 24, with interests in blocks 20, 25 and 26.</td>
</tr>
<tr>
<td>2013</td>
<td>BP/AMOC/Petronas/Total/Petrobras/Palma IVA/AMONG/AMC/AMON/AMM reach plateau production; first cargo delivered from Angola LNG.</td>
</tr>
<tr>
<td>2014</td>
<td>Block 24 exploration begins.</td>
</tr>
<tr>
<td>2015</td>
<td>Completed Greater Plutonio phase 3 project.</td>
</tr>
<tr>
<td>2016</td>
<td>Re-start of Angola LNG plant.</td>
</tr>
</tbody>
</table>

Caption: An electrical technician on Greater Plutonio.
We train our employees on applying the code of conduct in their daily work. Each year, our employees and our board members certify that they understand the code, have abided by their responsibilities and have reported any breaches of which they were aware.

We have a dedicated ethics and compliance team in Angola that provides regular communication, training, and investigation in relation to all aspects of the code of conduct, gifts and entertainment, anti-money laundering, anti-bribery and corruption. The leadership team in Angola reviews progress against an annual plan twice a year. The review covers topics such as training completed and any areas where intervention is required. An ethics and compliance committee, chaired by the BP regional president and involving other senior management, meets quarterly to set priorities, review issues, and drive action on the ethics and compliance programme.

We have a comprehensive programme of monitoring and reporting in place on how the code of conduct is being implemented. If required, we take disciplinary action, including employee dismissal, which we carry out in accordance with provisions in Angolan labour law.

We take steps to develop a culture of transparent business dealings in our own activities and in the wider business context. For many years we have supported a Master’s degree programme in oil and gas and a Master’s in oil and gas administration at Agostinho Neto University which includes a module on ethics and social responsibility. Its aim is to demonstrate the benefits of conducting business in an ethical and transparent manner.

Speaking up

We want our employees, contractors and other third parties to feel comfortable speaking up whenever they have a question about our code or see something that they feel is potentially unsafe, unethical or harmful.

We encourage employees to discuss their questions or concerns with their managers, supporting teams or via BP’s confidential helpline, OpenTalk. BP has zero tolerance for retaliation against anyone who seeks advice, raises a concern, reports misconduct or participates in an investigation. The consequences for misconduct or retaliation range from coaching and performance management through to dismissal. We look for opportunities to reinforce our culture of speaking up. As an example, in 2016 during our ethics and compliance week, we promoted listening sessions where employees had the opportunity to express their views in areas of concern. During the week, events included two town halls where the regional president discussed the importance of integrating ethics and compliance into our daily activities, and we held specific sessions on the challenges that arise in areas such as invoicing and supplier management.

Anti-bribery and corruption

Our code of conduct explicitly prohibits engaging in bribery and corruption in any form. We have a responsibility to our employees, our shareholders and to the countries and communities in which we do business to be ethical and lawful in our work.

Our group-wide anti-bribery and corruption policy applies to all BP-operated businesses. It sets out appropriate contractual commitments, risk assessments and training. In Angola, we provide training to those employees for whom we believe it is most relevant, depending on the nature of their role or in response to specific issues. Training was provided to approximately 200 people in 2016.

Before working with a supplier, we conduct an assessment to determine the degree of bribery and corruption risk posed. If needed, we then put in place a risk reduction plan. We also provide training to our counterparts to set our expectations and remind them of our zero tolerance policy of bribery and corruption once contracts are in place.

We introduced a local gifts and entertainments procedure in 2016 to address issues such as hosting events with government officials and to provide clear guidance on the appropriate processes to follow in relation to accepting or declining gifts and entertainment.

BP has been in Angola since the 1970s, and in the 1990s acquired interests in four deepwater offshore blocks some 200 kilometres northwest of Luanda. In 2011, we acquired interests in five new deepwater and ultra deepwater blocks in the Kwanza and Benguela basins to the south of the capital.

BP is one of the largest foreign investors in Angola, having invested approximately $30 billion by the end of 2016, and with plans to continue to invest well into the future.

We are the operator of blocks 18, 24 and 31 and have non-operated interests in blocks 15, 17, 20, and 25 as well as in the Angola LNG project in Soyo. Our block 19 exploration licence expired on 31 December 2016 and the block has now been relinquished.

Our operations

We have made substantial investments in Angola’s offshore development projects since the 1990s, and are now expanding the scale of our activities.
BP operated assets

Block 18 – Operated by BP

Partners: BP 50%, Sonangol 50%

Area: 5,000 square kilometres

Water depth: Varies from ~1,500 metres

Fields: None – exploration phase

Daily production: None

Block 24 – Operated by BP

Partners: BP 50%, Sonangol 50%

Area: 5,000 square kilometres

Water depth: ~1,200-1,600 metres

Fields: Girassol, Jasmin, Rosa, Dalia and Pazflor (Acacia, Hortensia, Perpetua, Zinia)

Area: ~1,200-1,700 metres

Water depth: ~1,500-2,500 metres

Fields: PSVM, the first project on block 31, is some 321 kilometres from Luanda and comprises the Plutao, Saturno, Venus and Marte fields and is one of the deepest development projects in the world.

Daily production: ~180,000 barrels per day (gross)

Block 31 – Operated by BP

Partners: BP 26.67%, Sonangol 45%, Statoil 23.33%, Thiirty-one Ltd 15%

Area: 5,349 square kilometres

Water depth: ~1,500-2,000 metres

Fields: Cobalto, Saturno, Venus and Marte fields and is one of the deepest development projects in the world.

Daily production: None

Block 17 – Operated by Total E&P Angola

Partners: Total 40%, PEA Exploration Angola 60%

Area: 4,349 square kilometres

Water depth: ~1,000-1,400 metres

Fields: Kizomba A (Hungo, Chocalho, Marimba North), Kizomba B (Kissanje, Dikanza), Kizomba C (Mondo, Savi Batuque), Kizomba Satellites I (Chochos, Macocul, Kizomba B Kiza, Banca, Mondo B), and 2001. The development uses an FPSO to process produced fluids and export crude oil.

Area: ~1,500-2,500 metres

Water depth: ~1,200-1,700 metres


Daily production: ~315,000 barrels per day (gross)

Block 20 – Operated by Cobalt International Energy

Partners: Cobalt International Energy 40%, BP 30%, Sonangol P&P 30%

Area: 5,000 square kilometres

Water depth: ~1,500 metres

Fields: None – exploration phase

Daily production: None

Block 25 – Operated by Total (TEPA)

Partners: Total 35%, Sonangol P&P 30%, Statoil 20%, BP 15%

Area: 6,000 square kilometres

Water depth: ~1,500 metres

Fields: None – exploration phase

Daily production: None

Non-operated assets

Block 15 – Operated by Esso Exploration-Angola

Partners: Esso Exploration Angola 40%, BP 26.67%, ENI 20%, Statoil 13.33%

Area: 4,349 square kilometres

Water depth: ~1,000-1,400 metres

Fields: Cobalto-A-Mungo, Choukou, Marimba Norte, Kizomba B Kiza, Kizomba C (Mondo, Savi Batuque), Kizomba Satellites I (Chochos, Macocul, Kizomba B Kiza, Banca, Mondo B), and 2001. The development uses an FPSO to process produced fluids and export crude oil.

Area: ~1,500-2,500 metres

Water depth: ~1,200-1,700 metres

Fields: Greater Plutonio: some 160 kilometres offshore, consists of five fields: Cobalto, Saturno, Venus and Marte fields and is one of the deepest development projects in the world.

Daily production: None

Block 24 – Operated by BP

Partners: BP 50%, Sonangol P&P 50%

Area: 5,000 square kilometres

Water depth: ~1,200-1,600 metres

Fields: Greater Plutonio development, some 160 kilometres offshore, consists of five fields: Cobalto, Saturno, Venus and Marte fields and is one of the deepest development projects in the world.

Daily production: None

Block 31 – Operated by Total E&P Angola

Partners: Total 40%, PEA Exploration Angola 60%

Area: 4,349 square kilometres

Water depth: ~1,500-2,000 metres

Fields: PSVM, the first project on block 31, is some 321 kilometres from Luanda and comprises the Plutao, Saturno, Venus and Marte fields and is one of the deepest development projects in the world.

Daily production: None

Block 20 – Operated by Cobalt International Energy

Partners: Cobalt International Energy 40%, BP 30%, Sonangol P&P 30%

Area: 5,000 square kilometres

Water depth: ~1,500 metres

Fields: None – exploration phase

Daily production: None

Block 25 – Operated by Total (TEPA)

Partners: Total 35%, Sonangol P&P 30%, Statoil 20%, BP 15%

Area: 6,000 square kilometres

Water depth: ~1,500 metres

Fields: None – exploration phase

Daily production: None

Production sharing agreements

BP in Angola operates under production sharing agreements which set out the terms of engagement with the Angolan government. The agreements provide the framework for our relationship with Sonangol, the state-owned oil company, and include financial provisions relating to how operating costs are recovered, how profits are shared, and contains requirements on matters such as health, safety and the environment, the need to recruit and develop local workers and the preferential use of local suppliers where possible. Separate commercial arrangements apply to the LNG plant, (see page 21).

Operational performance

Total net BP production from our major fields in Angola was 223,000 barrels of oil equivalent per day in 2016, similar to 2015 (2015 221,000, 2014 182,000)

Our floating production storage and offloading vessels (FPSOs) exceeded their internal targets, with 1.5 year plant efficiency of 84%. This represents our best performance to date. Similarly plant reliability remains robust, at an average of around 97% for both FPSOs.

We encourage our employees to identify and suggest areas where we can continuously improve our performance. Over the course of the year, we identified and acted on hundreds of suggested projects. For example, our operations teams have implemented projects to improve the management of spare parts and maintenance routines which have contributed significantly to better operational performance.

Block 18: Greater Plutonio

The Greater Plutonio development was the first BP-operated asset in Angola and consists of five distinct fields discovered between 1999 and 2001. The development uses an FPSO to process produced fluids and export crude oil.

The FPSO is connected to the wells by a large subsea system. The FPSO is 310 metres long and has oil storage capacity of 1.77 million barrels, gas processing of up to 240,000 barrels of oil per day, a produced and treated water injection rate of 450,000 barrels per day and gas handling of up to 400 million standard cubic feet per day. It is held in position by 12 mooring lines connected to anchor piles on the seabed.

In 2016, gross production from the Greater Plutonio FPSO averaged approximately 138,700 barrels of oil equivalent per day, at an operating efficiency of 93%.

It has been 10 years since the hull of Greater Plutonio was eased into position above the oil and gas reservoirs of Block 18, leading to BP’s first operated production from Angola. In this anniversary year, the vessel has another occasion to celebrate – 500 million barrels of oil have now flowed from these deepwater wells through the FPSO’s processing plant and onwards for export to refineries across the world.

While the production milestone is reason to reflect on achievements of the past, we also have an eye on the future. We began a comprehensive refurbishment programme in 2016 to prepare the facility for the next decade, and more, of operations.

“it has been our best year of production efficiency yet, and we remain focused on innovating the ‘topside and general fabric of the vessel,” said John Wallace, Greater Plutonio offshore installation manager. “The salty maritime environment is always extremely punishing to any metal structure, especially in the heat and humidity of the tropics. corrosion is a constant challenge here – hence the need for our rigorous maintenance regime.”

We have a team of 24 dedicated to a renovation programme that includes re-coating the vessel’s exterior surfaces, as well as making improvements to crew accommodation. “The target is to bring Greater Plutonio back to top condition for its next 10 years of life – and to look ahead even further,” added Wallace.
Field layout of the PSVM subsea system and the FPSO

In September 2016, we completed the topsides and subsea modifications and commissioning activities to allow the safe and reliable export of gas from the PSVM FPSO to the Angola LNG facility. This involved cross-functional teamwork and integration with partners to allow the preparation of equipment, finalization of pipeline export agreements and testing of communications and procedures to check we had the correct level of assurance for initial start-up and subsequent operations.

The Grassol and Dalia infill drilling projects, which involve adding new wells in an existing field within the original well pattern to increase recovery, continued in 2016. The five-year, billion dollar Rosa multiphase pump project was completed in 2016. Maintenance work continues on the FPSOs, with successful completion of a planned maintenance on Dalia in 2016. Projects of this nature, intended to guarantee the FPSO’s continuing integrity, are important to continuing efficient production from these assets.

Angola LNG
We are shareholders in the Angola liquefied natural gas (LNG) joint venture which owns an LNG plant in Soyo, Zaire province in the north of Angola. Angola LNG is an incorporated joint venture among Sonangol, Chevron, BP, ENI and Total. BP has a 13.6% share in the venture.

LNG plant in Soyo
The plant has one LNG production facility with annual capacity of 5.2 million tonnes, as well as related gas liquids products. It represents the largest single investment in the onshore Angolan oil and gas industry. Following a technical incident in April 2014, which caused an unplanned interruption to production, the plant’s planned maintenance (originally scheduled for mid-2014) was brought forward to address both technical and plant capacity issues. The plant restarted in the second quarter of 2016, and has been exporting LNG, condensate and propane cargoes globally since then, with butane being supplied to the Angolan domestic market. The 22MW Soyo local power plant, which was funded as part of the LNG project, is in the process of being commissioned and is expected to be fully operational in the near future, supplying the local community with electricity.

Logistics and infrastructure team
BP’s supply base, which officially opened in August 2007, is located on reclaimed land in the Sonils Logistics Integrated Services base near the port of Luanda and comprises offices, warehouses and yards. It is home to the logistics and infrastructure team and to representatives from other functions such as procurement and supply chain management. The team manages the transportation of personnel and equipment to and from both FPSOs (Greater Plutonio and PSVM), one drilling rig and two subsea support vessels.

As part of our review of rental equipment at the PSVM development, we removed a number of items – like tool boxes, scaffolding, gas racks and welding machines – that were being held on the vessel but not used. This has already delivered equipment savings of $750,000 in 2016 and eliminated man hours required for maintaining and inspecting the equipment. We continue to look for similar opportunities to reduce excess equipment and inventories elsewhere.

Capitol: LNG cargo delivery.

Angola LNG (%)
Our people

By building a highly competitive business in Angola, we aim to provide our employees with opportunities to grow and develop.

Reviewing our operating model

The current challenging economic environment, with a return to low oil prices, has required us to review our operating model to make sure we remain competitive and enable future growth. We have rigorously tested the value of all our proposed activities, looking for efficiencies and cost savings in our supply chain, and seeking to confirm that our organizational structure is appropriate for future activities.

In light of this review, we reduced the number of BP staff positions in the Angola business in 2016 and 2017. This affected expatriate staff, Angolan national staff, and UK-based staff. Throughout the process, we have been transparent in our communication and provided counselling and support to our people. We have maintained, and will maintain, an unwavering focus on safety. We will not, either as part of our simplification and efficiency efforts, or for any other reason, jeopardise the safety of our people or the country and my community through my work."

Angolanization

Angolanization remains central to our strategy. Our goal is to increase the rate of Angolanization across all levels with robust succession plans being confirmed to accelerate nationalization in the years ahead.

Approximately 86% of our total workforce based in Angola are Angolan nationals, a significant increase on previous years. This is partly as a result of the reduction in the number of BP expatriates in previous years. 2016 saw the appointment of our first Angolan of BP expatriates in Angola in 2015 and 2016. Approximately 86% of our total workforce, including on the job, by gaining experience and leadership positions. We encourage our people to undertake a final assessment which includes technical and behavioural interviews. Once this stage is completed they can apply to enter the Challenge programme (see page 23). This programme currently has a total of 11 scholars.

The offshore technicians programme

The offshore technicians programme offers routes for study and vocational training to young nationals looking to develop a career in the oil and gas industry. Programme graduates provide a pool of qualified people to help meet future BP needs. Trainees attend an intensive language course followed by two to three years experience as a refinery trainee at a refinery training centre in engineering disciplines such as production, electrical, instruments and controls, mechanical and marine. The technical skills are acquired at institutions such as the SAPREF refinery operated by a BP-Shell joint venture in Durban, South Africa, as well as Hull College, South Shields College and Warsash Maritime Academy in the UK.

More than 200 trainees have graduated from the programme since it began in 2001, including graduates in 2016. The vast majority of the current Angola technician population are on the Greater Plutonio and PSVM FFPSD graduated from the technician programme. Currently we have a total of 31 trainee technicians.

The Challenge programme

Part of our approach with up to three years work experience, the BP Challenge programme was created in 1993 to help graduates develop their technical and professional skills.

The competency-based programme covers a range of disciplines, such as engineering, finance, subsurface and wells. It provides graduates with practical experience and formal training in their chosen discipline.

Participants undertake two to three job rotations over a period of three years. Each rotation provides appropriate field or operational experience. Individuals also receive up to 20 days of formal training every year, along with coaching, assessments and feedback. Once the three years are complete, graduates can go on to pursue a range of career opportunities, from technical specialists to leadership roles.

We had 60 Challengers working in the Angola region in 2016. In the course of 2016, three graduates from the programme and moved into their first professional roles and two new Challengers joined our procurement and supply management team.

Core training

In addition to these development programmes, we provide training in technical disciplines such as human resources, finance, subsurface, drilling and operations, health, safety, security, and the environment.

Core training

In addition to these development programmes, we provide training in technical disciplines such as human resources, finance, subsurface, drilling and operations, health, safety, security, and the environment.

Our people.
Overview

Safety, health and security

Safety is one of our values and our number one priority. Our stated aim is to have no accidents, no harm to people and no damage to the environment.

The ‘Common Operating Picture’ tool enables us to assess the extent of an oil spill.

Safety, health and security

Safety management and performance

We take a rigorous approach to the management of risk with the goal of delivering strong safety performance.

There were three recordable injuries across all our activities in the Angola business in 2016 (2015 6, 2014 18). Our recordable injury frequency (RFI), which measures the number of injuries to the workforce per 200,000 hours worked, improved to 0.08 in 2016 (2015 0.11, 2014 0.29). There were no fatalities in our activities in 2016. Approximately 7.2 million man-hours of work were carried out in the course of the year (2015 11.2, 2014 12.3).

Safety management and performance

We take a rigorous approach to the management of risk with the goal of delivering strong safety performance.

We had two losses of hydrocarbons from primary containment in our operations in 2016, an improvement on the seven in 2015. There were also five “high potential” incidents, which are incidents that might have resulted in more serious consequences if circumstances had been slightly different. All high potential incidents are investigated by senior leaders. In all cases, immediate and management system causes and findings were established. We log actions and carry out reviews of lessons learned with senior managers, and implement the learnings.

Crisis and continuity management

Our Angola region crisis and continuity management framework defines response team accountabilities, outlines organizational arrangements, provides links to risk assessment and processes. It explains how we build capability through training, exercises and continuously improve our provisions through lessons learned.

In 2016, we revised all our crisis management plans with input from the BP group to address operational risks, such as how to manage the transition of making crew changes by boat instead of by air. We re-developed, tested and validated our civil unrest response plan. Plans that relate to oil spill contingency for our operated blocks were also reviewed by BP experts and subsequently approved by government.
We improved our processes for accounting for personnel in case of a crisis. The system we have put in place enables us to account for personnel during and after an emergency.

Oil spill preparedness and response

Though our priority is prevention, spills can still happen. We take steps to improve our ability to respond should a spill occur, including simulation exercises, using technology to enhance our response capability, and oil spill response plans.

Response exercises are an important element of our approach. In 2016, we ran many drills and exercises to test and validate our plans. We held a major oil spill response exercise involving 135 participants from BP Angola, Angola authorities and selected members of oil and gas producing companies operating in Angola. Feedback from the event was positive and extensive, covering specific issues relating to how the exercise was carried out as well as broader recommendations on how to improve response capability.

We recognize the importance of developing the skills and experience of those responsible for emergency response and crisis and continuity management. We seconded our oil spill advisor to Oil Spill Response Limited, the industry funded co-operative that provides oil spill advisor to Oil Spill Response Limited, in Angola. The placement provided practical insight into different oil spill response techniques. We also provided training for the BP Angola incident management team.

BP has also developed and deployed a web-based mapping tool, known as the common operating picture that visualizes, analyses and stores all of the diverse geospatial information that is generated during an incident. During our oil spill response exercise, we used the tool to enhance decision-making and co-ordinate resources by providing a holistic overview of the situation.

Contractor safety and compliance

The need to be rigorous and consistent in the way we engage and manage contractors remains critical to our goal of ensuring our activities cause no accidents, no harm to people and no damage to the environment. In Angola, many of the activities in support of our operations are carried out by third-party contractors. Our strategy is to form deep relationships with our contractors, underpinned by rigorous selection and performance management processes. Understanding and complying with contractual requirements, including the management of their sub-contractors, employee competence, HSSE and quality are critical to mitigating risks in our operations.

BP Angola also seeks to establish clear expectations of safety performance for each contractor, with a senior BP advisor assigned accountability for managing the relationship and overseeing safety performance. We hold meetings with contractors to confirm our efforts are aligned and to continuously identify, manage and mitigate risks.

We have also identified a number of contractors with whom we will start a new ‘Collaborative Efficiency Programme’ in which both parties identify further areas for improvement and efficiency.

We plan to host contractor forums in 2017 to review and discuss performance. The events will be run by our contractors where they will present analysis of safety performance, set out their approach to safety management and assurance, and share good practices.

Health and wellbeing

We identify and prioritize health risks to our workforce and the communities around us and target our interventions accordingly. Our regional health plan includes measures to tackle key risks such as malaria, medical emergency response capability, heat stress, fatigue, cardiovascular diseases and psychological health such as occupational stress.

We conducted training on industrial hygiene for the entire Angola health team. The training used the HealthMap tool, which is an online system that helps to identify, manage and track the management of health risks.

We recognize that health problems can arise for people whatever their working environment. In light of BP Angola’s re-organization programme, carried out in 2017, we provided psychological support for all employees. We placed full-time national psychologists in our workplaces. We also held sessions on psychological health support, covering topics such as stress management and dealing with anxiety. We continued to provide support for expatriate workers through the Employee Assistance Programme. We also carried out a range of activities to promote good health, focusing on fatigue, stress, drugs and alcohol, cardiovascular screening and infectious diseases.

Managing the risk of cardiovascular disease

We undertook a screening programme for cardiovascular disease for staff at BP offices in our onshore and offshore locations. Those at risk were encouraged to have follow up consultations with specialists. We will carry out this type of screening annually.

Infectious disease management

Some health risks, such as those from outbreaks of disease, are largely outside our control. Changing patterns of infectious diseases remain a threat to people and business continuity.

We put a combination of preventative measures in place to minimize these risks or mitigate their impact, and we engage experts from outside Angola to review the steps we take. A yellow fever outbreak was one of the threats at the end of 2015 and during the first quarter of 2016. We put measures in place to mitigate this risk, including an awareness and vaccination programme for all employees and their dependents.

Security

Our security professionals provide systems and processes that seek to protect our people, physical and digital assets, finance and investment, proprietary information, intellectual property and reputation from harm.

We regularly assess the security risks faced by our people and our business. For example, to mitigate personal security risks, we provided advice to our expatriate community on street crime, given their greater exposure to this risk.

To protect our assets offshore, we engage with local authorities to prevent vessels from entering the 500 metre exclusion zone around our FPSOs.

BP is a signatory and founding member of the Voluntary Principles on Security and Human Rights, which provide a framework for companies to assess whether human rights issues are likely to occur as a result of security activities within local operations, and to allow appropriate precautionary steps to be taken.

We negotiated and signed a new contract with our security provider in 2016, and provided regular on-site training to maintain our awareness of risks and the procedures they must follow in the event of an incident.
Managing environmental impacts

Our aim to continuously improve our environmental performance and reduce our risks.

Climate change

Working with others, BP can help drive the transition to a lower carbon future. We want to bring down our greenhouse gas emissions – while supplying the affordable energy the world needs.

BP is working to make sure our business is sustainable – commercially, environmentally and in a lower carbon future.

The global energy landscape is changing. The energy mix is shifting, driven by technological improvements and environmental concerns. Fast-growing emerging markets are overtaking traditional centres of demand.

The energy transition underway poses a significant challenge – how to meet the world’s growing demand for energy while also reducing carbon emissions. That creates important choices and opportunities for BP and our industry.

We are evolving our strategy – allowing us to be competitive in a time when prices, policy, technology and customer preferences are changing. Our strategy anticipates a range of scenarios to give us flexibility in our approach, rather than pursuing a single view of the future.

We believe having a balanced portfolio and a dynamic investment strategy gives us the resilience to meet the challenge.

Two decades of BP helping to tackle climate change

1997
- BP’s chief executive, Lord Browne, calls for precautionary action to cut greenhouse gas (GHG) emissions.

1998
- BP sets target to cut emissions from its operations to 10% below 1990 levels by 2010. We met this target in 2001.

1999
- BP is a founding member of the International Emissions Trading Association.

2000
- BP launches the CO₂ Capture Project with other companies and governments, to develop carbon capture and storage (CCS) technology.

2003
- Tonghua BP Clean Energy Research and Education Center launches in China.

2004
- BP and partners launch a CCS project at the In Salah gas field in Algeria.

2005
- BP launches its Alternative Energy business.

2006
- BP launches Target Neutral, our not-for-profit carbon offsetting programme for customers.

2008
- BP launches the World Bank carbon pricing statement.

2009
- BP sets target to cut emissions from its operations to 10% below 1990 levels by 2010. We met this target in 2001.

2011
- BP becomes the largest operator of Brazil biofuels among our oil and gas peers.

2014
- BP begins using a carbon price in investment decisions.

2015
- BP is world’s first supplier of commercial jet biofuel using existing infrastructure at Norway’s Oslo airport.

2016
- BP launches Zhuhai 3 petrochemical plant, delivering 65% lower GHG emissions than comparable plants.
Safety, health and security

Our health, safety, security and environment (HSSE) policy sets out our expectations for HSSE performance in our operations.

In Angola, our principal operations are located offshore, more than 100 kilometres from centres of population. Potential environmental impacts from our activities fall mainly in the following areas:

- Waste generation, management and disposal
- Hazardous and non-hazardous waste is produced from floating production, storage and offloading (FPSO) operations, drilling rigs and onshore logistics sites.
- Operational discharges: These include drill cuttings generated when we drill into the seabed to construct a well. These cuttings are sent onshore for treatment. The main discharges from the FPSOs are produced water, solids and sanitary waste.
- Air emissions: These are generated mainly from the combustion of fuels in power generation for drilling, marine vessels, gas turbines from FPSO operations, fugitive emissions from process tubing and wellheads, as well as emissions from other onshore activities.

Taking a systematic approach

We operate an environmental management system which meets the requirements of the international standard ISO 14001. This provides a systematic approach to managing environmental impacts, including adjusting the use of drilling chemicals to minimize effects on seabed fauna.

Environmental protection

We at BP have a long-standing commitment to protecting the environment, as demonstrated by the following initiatives

Our commitment to health, safety, security and environmental performance (HSSE)

We set annual objectives and targets to help us improve our performance, and to ensure that we are meeting our environmental obligations.

We describe the main environmental issue we face and the impacts associated with it, and the measures we have taken to address it.

Our environmental performance

We provide information on our key environmental issues as well as our performance, waste management, water discharges, spills, noise and biodiversity.

Objectives and targets

We set annual objectives and targets to help us achieve our goal of continuous improvement in our environmental performance. When setting these objectives, we concentrate on our most significant environmental impacts.

Performance

We describe our main environmental issue and how we manage it in the Environmental management section of this report (page 33).

Air emissions

Our routine emissions to the atmosphere result primarily from FPSO gas flaring. Venting from the FPSOs and rigs, and power generation, including that from vessels, constitute additional emission sources. The emissions from these sources include carbon dioxide, methane, non-methane hydrocarbons, and gases of nitrogen and sulphur (NOx and SOx).

Our total flaring volume in 2016, of approximately 1.04 million tonnes, was similar to the amount flared in the previous year (2015 1.08m t, 2014 1.19m t). Flaring from Greater Plutonio increased in 2016 when compared with 2015 due to a combination of factors relating to reservoir management, equipment interruptions, and maintenance. The total volume of flaring is partially dependent on the availability of the Angola Liquefied Natural Gas (ALNG) plant to receive exported gas from our two FPSOs. PSVM has been exporting gas to ALNG since the second half of 2016, which has contributed to the reduction of gas flared at that facility.

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Our equity share direct greenhouse gas emissions increased slightly in 2016, totalling approximately 3,581 thousand tonnes of carbon dioxide equivalent (2015 2,917 thousand, 2014 2,348 thousand). In 2016, we established a greenhouse gas improvement programme, with a view to investigating opportunities to reduce flaring without compromising production.

Waste

We seek to implement the waste hierarchy of eliminating, reducing, reusing and recycling waste from our operations in Angola, wherever possible. We manage our waste through operational controls, setting objectives and targets, monitoring, auditing and conducting research or investigations when necessary. Our strategy, implemented through our waste management guidance at a facility level, seeks to make sure that we meet regulatory requirements and follow acceptable industry practices. This includes the need to oversee the activities of any waste contractors working on our behalf.

In doing this, we exercise a duty of care over our waste management practices in Angola – using waste transfer notes to document the movement of waste from generation through to transfer and handling by approved contractors and disposal.

The amount of hazardous waste disposed decreased significantly in 2016 to 808 tonnes (2015, 9,062, 2014 1,220). The principal reason for the decline was the reduced amount of activity in block 18, where no drilling occurred in 2016, resulting in fewer drill cuttings.

The amount of non-hazardous waste disposed also declined, to 666 tonnes (2015 886, 2014 1,220). The principal reason for the decline was the reduced amount of activity in block 18, with no drilling occurring in 2016, resulting in fewer drill cuttings.

We monitor the amount of oil in produced water from Greater Plutonio and PSVM. The majority of produced water is re-injected into the well formation, which eliminates the negative impact of oil discharges to the environment. Following successful re-injection trials in 2015, PSVM started re-injecting its produced water in 2016. We monitor and report on the number of occasions when we exceed desired levels for oil in water, known as ‘oil in water excursions’.

Oil spill preparedness and response

Our approach is to seek to minimize the amount of oil or chemicals that reach the environment, develop actions to prevent reoccurrence and report all incidents to the regulators as required by law. There were no spills that reached the environment in 2016. There were a total of four spills of more than one barrel from our activities in 2016 but all of them were contained. The total volume spilled from these incidents was approximately 2,622 litres – equal to approximately 16.5 barrels (2015, 4,773, 2014 1,746). Noise

We take steps to understand how our operations may disturb marine habitats or sensitive areas. Our monitoring stations in Angolan waters gather sound data as well as data on ocean currents, temperature and water chemistry, and photographs of marine life. The stations are designed to be in place for 25 years and help us to understand long-term patterns in the deepwater environment, including sound associated with our activities.

The economic value we deliver in Angola (2016)

Captions:

- The water treatment system on PSVM.

- Noise monitoring station offshore Angola.
Supporting education

We support projects in Angola that improve educational institutions and vocational training as well as helping individuals gain access to primary and secondary level schooling.

Through our social projects we aim to support the government in enabling access to education, improving the condition of rural schools and providing opportunities for vocational training. This can involve improving school buildings, increasing the scientific and technical capability of teachers and school leavers, supporting university education, developing the capacity of institutions to provide better educational services, or helping individuals gain the skills and opportunities they need to contribute to society.

Support for Divina Providência Hospital

In the midst of the rainy season in Angola from January to April, hospitals throughout the country and particularly in Luanda were severely stretched and lacked resources to address the problems caused by a yellow fever outbreak that killed more than 350 people.

In response, BP Angola staff launched an appeal in Angola and the UK which raised more than $100,000 for the Divina Providência Hospital. Father Fernando Alves Tchilufa, the hospital manager, said that the donation would help to help meet the need for disposable items and medicines in short supply.

“This part of this donation will go to the main front centre where we have been having difficulties in our fight against this problem,” said Father Tchilufa.

A group of BP employees toured the hospital, visiting wards and talking to patients. “My colleagues at BP were touched by the substantial increase in cases of malnutrition and yellow fever,” said BP Angola sustainability and public affairs manager Adelberto Fernandes. “We decided to launch this appeal,” and collected the funds to show our solidarity with the plight of the people. For the same reason, the company also felt the strong desire to contribute,” he added.

The Divina Providência Hospital was selected due to its location in the community where it works to provide primary health care of high quality. Established in the 1990s, Divina Providência is embedded in a densely populated area. The hospital has a network of four health centres in the Kambioe Kioe municipality. It provides general and specialist healthcare including tuberculosis, paediatric, gynaecology and orthopaedic treatment. The 130-bed hospital is staffed with 30 doctors and around 100 nurses. Support from BP and its employees will make a valuable difference and help to alleviate the pressure on other main hospitals in the city centre.

Access to education

Since 2003, BP has funded projects for the construction of several schools in the provinces of Luanda, Benguela, Huambo, Huila, Moxico, Uige, Kwanza Norte, Kwanza Sul and Zaire. In the past five years, our partnership with Rio Angola has helped to construct 10 schools in rural and semi-urban areas in order to make education more accessible to local communities. This initiative now helps with the education of approximately 9,000 children, and provides jobs for around 250 local teachers.

Facilities to support professional training

We also focus our efforts on developing people’s skills so that they can make a valuable contribution to the country’s development. These initiatives are often linked to strengthening training and development institutions.

Building capacity in oil and gas

In 2007, we assisted the UAN law faculty in establishing a Master’s (LLM) programme in oil and gas law. The objective of the programme is to create a strong network of Angolan professionals with thorough knowledge and understanding of the oil and gas industry. The course contains a wide range of modules including ethics and transparency, oil and gas technology, contracts, tax and environmental law.

New polytechnic institute for the Kikolo community

In August, BP and its partners in Block 18 opened a polytechnic institute that will train students in electricity, computer science and mechanics. BP funded the construction of the $1 million 18-classroom educational facility for 2,500 students under the Block 18 social investment portfolio.

In opening the facility, BP highlighted the vital role of education in the development of Angolan young people and reaffirmed the company’s commitment to supporting educational initiatives in Angola.

“The school will create 45 new jobs for teachers and administrative staff and will train technicians in electrical skills, IT and mechanics. It will be run by the Ministry of Education and the Sisters of St. Catarina de Siena.

Church leader Sister Maria spoke about how the church has been delivering education in the community for more than a decade. She highlighted the three-year journey to build the school complex as a continuation of the work started in 2002 in response to a government appeal to provide basic education for children in need.

“The priority was to expand our activities to the next level to support those students who had completed the first education cycle” she said. “In 2013 we embraced this project to build a bigger school, working in harmony with the community and our partners. Teaching requires sacrifice and dedication and we thank Sonangol, BP and others for making this institution a reality,” she added.

The original LLM programme has been transformed into two full Master’s degree courses. Students can now take either a Master’s in oil and gas law or a Master’s in oil and gas business administration. A new course on environmental management and governance, also supported by BP, is being provided.

These programmes have involved students from a wide range of institutions such as oil companies, legal firms, the Ministry of Petroleum and the Ministry of Finance. The programmes aim to enhance networking opportunities that enable its graduates to make a significant contribution in their chosen fields, reducing the industry’s reliance on foreign technical assistance.

In addition to training oil and gas professionals and future leaders of Angola in managerial, technical and legal aspects of the industry, the programmes have raised awareness within government, industry and academia of the importance and benefit of ethics, transparency and good corporate governance.

In July 2016, BP Angola held a workshop on oil and gas for journalists, which was attended by various public and private media. This short training course helped to improve understanding of the technical, commercial, environmental and legal issues facing the industry among important stakeholders.

Overview

In 2016, BP Angola continued to deliver a range of projects and programmes to support social and economic development, which have contributed to the well-being of local communities.

Our socio-economic contribution to Angola

We invest to develop local people, build the capability of local companies, and create strategic partnerships for institutional and social development.

We believe that societies and communities where we work should benefit from our presence – through the oil we produce, the taxes we pay, the jobs and opportunities we create for local suppliers, the knowledge transfer and capability building, and the investment of our time and money in people.

We invest in education and skills development, including school construction, teacher training, and improving local infrastructure.

We invest in health, safety and the environment where there is a significant shared benefit to BP and local communities.

We seek to involve the potential beneficiaries of our projects so that they are empowered to have a role in protecting the projects and making them sustainable over the longer term.

Our aim is to engage openly and transparently, through dialogue and consultation with implementing partners and beneficiaries, as well as government, communities and other representatives of civil society who have a legitimate interest in our operations.

A partnership approach

To deliver our projects and programmes, we work with strategic partners who implement the projects we finance.

We pay special attention to developing the capability of the organisations we work with. We seek to involve the potential beneficiaries of our projects so that they are empowered to have a role in protecting the projects and making them sustainable over the longer term.

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Project selection and evaluation

We provide framework guidance to potential partners to help them develop project plans and objectives. The process involves a direct relationship between all parties in which BP evaluates the proposals and provides support to set goals and performance indicators. Each project proposal is evaluated in accordance with a clear process, overseen by a project selection committee.

Our social projects

Over the past decade, BP has invested millions of dollars through various channels in social initiatives that support the development of Angolan communities. In 2016, we spent approximately $2.1 million on community programmes.

See page 38 for a full list of our social investment projects.

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Promoting enterprise

By promoting enterprise development in Angola, we aim to create more job opportunities and support economic diversification.

To address the risk of over-reliance on oil, the government has been seeking growth in the non-oil sector, with a public sector investment programme that attempts to diversify the economy, complete reconstruction and address key infrastructure gaps.

Our key contribution lies in maximizing oil and gas production, which creates revenues for the government, but we also help to develop the local economic and social infrastructure.

Building local economic capacity

We aim to promote the use of local suppliers and to maximize local content in our operations and projects. We have developed goals for local content, such as maximizing total spend with local suppliers in Angola, which are in line with the BP global framework for local content strategies, issued in 2016.

Provisions within the production sharing agreements (PSAs) seek to make sure that the social and economic benefits arising from our activities are shared for the country’s good. For example, in conducting our operations, we are required to give preferential treatment to local labour and to provide infrastructure to local communities.

In 2016, BP Angola spent approximately $519 million (34% of total spend) with local suppliers. Over the course of the year, around 100 local companies were involved with BP in various projects at any one time.

BP representatives participated in two workshops on local content, organized by the Centre for Enterprise Development in 2016.

Local supplier engagement

The main objective was to provide an overview of the Pan-African agribusiness programme and its supply chain to local providers, and to give them a clear insight into tender processes. There was a high level of engagement with participants during a question and answer session, including comments from local companies on the challenges they face in addressing international business principles in areas such as safety and quality.

In November 2016, BP participated in the Africa Oil and Gas Local Content conference and exhibition in Luanda, organized by the AME Trade under the initiative of the Africa Petroleum Producers Association. The initiative was designed to find solutions to the challenges of meeting localization requirements and building local skill sets across the hydrocarbon industry in Africa.

The main topic discussed at the event was how to achieve a rate of 30% local content in a range of oil and gas activities by 2030.

BP hosts a UK delegation visit to the Huambo agribusiness programme

Since 2005, BP and its Block 18 partners have invested $3.5 million in an agribusiness programme in Huambo province, 600 kilometres southeast of Luanda. The programme aims to help communities build capability and gain access to bank credit to fund their activities. Some 3,000 farmers from 10 cooperatives have benefited from the initiative.

In 2016, a delegation from BP Angola visited the programme with the UK trade envoy for Africa, Baroness Noreen. The visit’s purpose was to enable those involved to see the potential for partnerships with British companies and to share learnings from one of BP Angola’s effective enterprise development programmes. The hope is that this success can be replicated in other parts of the country.

The delegation spent time with members of the co-operative that BP supports and visited a maize plantation to discuss some of the technical aspects of the farmer’s daily activities, along with the benefits, challenges and future of the programme. The cooperative has 125 members, more than half of whom are women, and grows maize, potatoes, soy and vegetable crops.

The farmers involved lived in extreme poverty in 2005. The initiative has helped in a number of ways. Now they can, for example, run co-operatives which pay taxes, own their land, build warehouses and grading mills, buy tractors, motorcycles, build their own houses and send their children to school. Their production is of sufficient quantity and quality to supply the local market, and to be exported to the Democratic Republic of Congo and Congo Brazzaville.

Overview

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Managing environmental impacts

Maximizing value for society

Capabilty development

Our social investment initiatives seek to build the capacity of local people and institutions

Angola continues to face social challenges including poverty and living conditions that limit opportunities for many people. While there are many challenges in urban areas including Luanda, some of the most acute problems are found in areas distant from the capital.

We and our partners support projects that contribute to development and seek to alleviate poverty. They cover practical initiatives such as improving access to basic services (such as schools, social centres, or hospitals) and helping individuals in their private lives—such as supporting those who are less able, or providing rehabilitation services.

We support a variety of projects that aim to improve community health, reinvigorate the importance of safety, and protect the natural environment.

School libraries play a critical role in reinforcing the reading skills of children, and in fostering the habit of reading. For children to become independent readers, effective communication and literacy learners, they need time to practice, and exposure to a variety of texts. School libraries can play a key role in developing literacy skills and promoting the habit of reading.

Two libraries were established in June 2016 at Jimba-Sil and Kupuama primary schools in Bie province. Together, the schools are benefiting more than 1,500 students and 50 teachers. Those that will be part of the library were trained in how to set up and use the library, care and maintenance, understanding how to recommend and maximize the resources, and how to engage students to foster a love of reading.

Partnership Initiative

Since September 2016, BP has been working with MAT to improve English language proficiency for local administration officials. This includes building the capacity of the Training Institute of Local Administration (IFAL) and will result in the establishment of two centres of English excellence in Luanda and Huambo. These will offer long-term quality English language training.

English remains the primary language of international business and BP is keen to support an initiative which enables Angolan officials and institutions to benefit more fully from the training, networking, and business opportunities that exist within the Southern African Development Community.

The English language remains a powerful tool for regional integration, economic diversification and institutional capability.

This project is aligned with the local government partners within the National Development Plan (2013-17) and with the Angola government’s long-term development strategy to 2025.

Kitabanga research project

The Kitabanga research project aims to increase the protection of sea turtles along the coast of Angola. It is being supported by BP and implemented by the Science Faculty of Agostinho Neto University with the participation of the National Air Force, coastal communities and volunteers.

To date, the project has increased knowledge about the status of sea turtles in Angola and has educated coastal communities about the conservation of turtles. Sensitive areas have been protected and new born turtles safely delivered to the sea.

The project covers an area equivalent to 6,554 km² (33% of the Angolan coast) in a range of locations.
### Our social investment projects

We focus our social investment on a broad range of projects, supporting education, enterprise development and capability development.

#### BP Angola and partner social projects

<table>
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<th>Funding</th>
<th>Partners</th>
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<tr>
<td>Conservation of marine turtles</td>
<td>Apply research to support the preservation of marine turtles in the coast of Angola, provide university students practical experience and raise awareness among local communities of the need to preserve turtles</td>
<td>Benguela, Luanda, Namibe, Zaire</td>
<td>2011-16</td>
<td>827,700</td>
<td>BP100%</td>
<td>Faculty of Science (Agostinho Neto University)</td>
</tr>
<tr>
<td>Medical lab simulator for nurses</td>
<td>Equip a nursing lab to allow students and professionals to have practical lessons, especially for procedures and skills required during emergency or trauma situations</td>
<td>Luanda</td>
<td>2015-16</td>
<td>293,000</td>
<td>Block 18</td>
<td>JAMU&amp; Nursing Institute</td>
</tr>
<tr>
<td>Master’s degree in petroleum law and management</td>
<td>Build a local knowledge base in petroleum law and management</td>
<td>Luanda</td>
<td>2007-16</td>
<td>1,639,000</td>
<td>BP100%</td>
<td>CEJES (Agostinho Neto University)</td>
</tr>
<tr>
<td>Community and professional internship programme</td>
<td>Offer university students work experience with direct contact with communities in urban, semi-urban and rural areas with the aim of supporting them in the preparation of degree theses; provide them practical experience of the labour market and key social issues</td>
<td>Bango, Benguela, Cunene, Huambo, Luanda, Zaire (Goy)</td>
<td>2010-16</td>
<td>981,000</td>
<td>Block 31 and BP100%</td>
<td>DW</td>
</tr>
<tr>
<td>Master’s degree in environmental governance and management</td>
<td>Build the capacity of technical staff to develop skills related to the sustainable exploration of resources and protection of the environment</td>
<td>Luanda</td>
<td>2014-16</td>
<td>278,500</td>
<td>BP100%</td>
<td>Science Faculty (Agostinho Neto University)</td>
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<td><strong>Enterprise development</strong></td>
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<td>Greater Plutonio agribusiness</td>
<td>Help communities organize themselves, build capability and have access to bank credit in order to fund their activities</td>
<td>Huambo and Benguela</td>
<td>2005-16</td>
<td>2,700,000</td>
<td>Block 18 and BP100%</td>
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<td><strong>Capability development</strong></td>
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<tr>
<td>Acquisition of medical equipment</td>
<td>Acquire equipment for the health centres and basic training for staff</td>
<td>Luanda</td>
<td>2016-17</td>
<td>250,000</td>
<td>BP100%</td>
<td>Divina Providencia</td>
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<tr>
<td>Health crisis fund raising campaign</td>
<td>Support the needs of a major hospital and four medical centres on the outskirts of Luanda due to a yellow fever outbreak</td>
<td>Luanda</td>
<td>2016</td>
<td>112,000</td>
<td>BP100% and employees</td>
<td>Divina Providencia</td>
</tr>
<tr>
<td>Combating malnutrition</td>
<td>Combating malnutrition and micronutrient deficiencies in children</td>
<td>Bengo</td>
<td>2016-17</td>
<td>125,000</td>
<td>BP100%</td>
<td>CISA</td>
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<th>Total budget (US$)</th>
<th>Funding</th>
<th>Partners</th>
</tr>
</thead>
<tbody>
<tr>
<td>Masters scholarships for Angolan students</td>
<td>Contribute to the professional growth and development of key individuals with the potential to become future leaders in various sectors including in the area of health</td>
<td>UK</td>
<td>2015-18</td>
<td>300,000</td>
<td>Block 31</td>
<td>British Embassy in Luanda</td>
</tr>
<tr>
<td>Room to Read Accelerator</td>
<td>Build on investments made by BP and its partners with the aim of providing a wide range of books, resources and to increase the affectiveness of teachers and librarians</td>
<td>Benguela, Bié and Huila</td>
<td>2015-16</td>
<td>200,000</td>
<td>BP100%</td>
<td>Rise Angola</td>
</tr>
<tr>
<td>English Language Proficiency</td>
<td>Support the establishment of an English Learning Centre of Excellence to ensure sustainable training for government officials and employees</td>
<td>Luanda</td>
<td>2015-16</td>
<td>300,000</td>
<td>BP100%</td>
<td>IFAL</td>
</tr>
<tr>
<td>Escola da Senda phase 2</td>
<td>Construction of amphitheatre and multi-use sports field and purchase of a generator for evening classes</td>
<td>Lubango</td>
<td>2016-17</td>
<td>80,000</td>
<td>BP100%</td>
<td>Rise Angola</td>
</tr>
<tr>
<td>Youth Centre</td>
<td>Additional funds for the centre, to focus on training and recreational activities for young people in the community, building in the element of social inclusion</td>
<td>Mexico</td>
<td>2016-17</td>
<td>290,000</td>
<td>BP100%</td>
<td>Rise Angola</td>
</tr>
<tr>
<td>Construction of community centre – Se Catedral do Lobito</td>
<td>Provide youth with a multi-use facility for professional training and cultural activities</td>
<td>Benguela</td>
<td>2015-16</td>
<td>1,274,000</td>
<td>Block 18</td>
<td>Rise Angola and Se Catedral do Lobito</td>
</tr>
<tr>
<td>Sports ground for Patriota school</td>
<td>Development of a sports ground in Patriota school to provide an inclusive education for youth and students</td>
<td>Luanda</td>
<td>2016</td>
<td>50,000</td>
<td>BP100%</td>
<td>Rise Angola</td>
</tr>
</tbody>
</table>

Caption: Our social projects seek to contribute to development and alleviate poverty.
About this report

This report covers the activities of BP Angola, focusing on our performance in 2016 while providing relevant updates on developments in 2017. It has been prepared by our business in Angola, which is based in Luanda. We show data for activities where we are the operator, unless indicated otherwise.

In the report, references to ‘BP’ and the ‘BP group’ shall mean BP p.l.c., its subsidiaries and affiliates and, unless otherwise stated, the text does not distinguish between the operations and activities of BP p.l.c. and those of its subsidiaries and affiliates. Unless specified otherwise, references in this report to ‘us’, ‘we’, and ‘our’ shall refer to companies in the BP group operating in Angola.

Unless otherwise indicated all currency amounts are denominated in US dollars.

Cautionary statement

BP in Angola Sustainability Report 2016 contains certain forward-looking statements with respect to the financial condition, results of operations and businesses and certain of the plans and objectives of BP with respect to these items. By their nature, forward-looking statements involve risk and uncertainty because they relate to events and depend on circumstances that will or may occur in the future and are outside the control of BP. Actual results may differ materially from those expressed in such statements depending on a variety of factors including future levels of industry product supply; demand and pricing; operational problems; general economic conditions; political stability and economic growth in relevant areas of the world; changes in laws and governmental regulations; exchange rate fluctuations; development and use of new technology; changes in public expectations and other changes in business conditions; the actions of competitors; natural disasters and adverse weather conditions; wars and acts of terrorism or sabotage; and other factors discussed elsewhere in this document and in BP Annual Report and Form 20-F 2016. Material is used within this document to describe issues for voluntary sustainability reporting that are considered to have the potential to significantly affect sustainability performance in the view of the company and/or are expected to be important in the eyes of internal or external stakeholders. Material for the purposes of this document should not, therefore, be read as equating to any use of the word in other BP p.l.c. reporting or filings. BP Annual Report and Form 20-F 2016 may be downloaded from bp.com/annual report. No material in this Sustainability Report forms any part of those documents. No material in this Sustainability Report constitutes, or shall be taken to constitute, an invitation or inducement to invest in BP p.l.c. or any other entity nor should it be relied upon in any way in connection with any investment decisions. BP p.l.c. is the parent company of the BP group of companies. Unless otherwise stated, the text does not distinguish between the activities and operations of the parent company and those of its subsidiaries.

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Printed in the UK by Pureprint Group using their sustainable printing technology.

Caption: Warehouse supervisor and colleague at the BP supply base, Sonils.
BP’s corporate reporting suite includes information on our sustainability and financial performance, as well as our global energy and technology projections. We also publish issue briefings on oil sands and unconventional gas development.

Sustainability Report 2016
Details of our sustainability performance with additional information online.
bp.com/sustainability

Oil sands issue briefing
Information on our approach to developing energy from Canada’s oil sands.
bp.com/oilsands

Unconventional gas issue briefing
Details of our approach to managing the potential impacts of hydraulic fracturing and unconventional gas development.
bp.com/unconventionalgas

Annual Report and Form 20-F 2016
Details of our financial and operating performance in print and online.
bp.com/annualreport

BP Energy Outlook 2017 edition
Provides our projections of future energy trends and factors that could affect them out to 2035.
bp.com/energyoutlook

Statistical Review of World Energy 2017
An objective review of key global energy trends.
bp.com/statisticalreview

BP Technology Outlook
Shows how technology can play a major role in meeting the energy challenge out to 2050.
bp.com/technologyoutlook

BP social media
Join the conversation, get the latest news, see photos and films from the field and find out about working with us.

For more information
www.bp.com/angola
This provides an overview of BP Angola’s activities and investments, including a focus on our employees and partners, and community and social investment initiatives.
www.bp.com

This site contains information about the BP group including detail of its policies and values and reports on its activities and operations worldwide.

Feedback
We welcome feedback on this report. You can write to us at the address below, marked for the attention of the Communications and External Affairs team, or send an e-mail to us at bpangola@bp.com

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